

What is claimed is:

- Sub B1*
1. The following recombinant protein (a) or (b):  
(a) a protein comprising the amino acid sequence shown in SEQ ID NO: 2, 4 or 6;  
(b) a protein which comprises the amino acid sequence shown in SEQ ID NO: 2, 4 or 6 having deletion, substitution or addition of one or several amino acids, and which has choline monooxygenase activity.
2. A choline monooxygenase gene encoding the following protein (a) or (b):  
(a) a protein comprising the amino acid sequence shown in SEQ ID NO: 2, 4 or 6;  
(b) a protein which comprises the amino acid sequence shown in SEQ ID NO: 2, 4 or 6 having deletion, substitution or addition of one or several amino acids and which has choline monooxygenase activity.
3. A gene comprising the following DNA (c) or (d):  
(c) a DNA comprising the nucleotide sequence shown in SEQ ID NO: 1, 3 or 5;  
(d) a DNA which hybridizes to a DNA comprising the nucleotide sequence shown in SEQ ID NO: 1, 3 or 5 under stringent conditions and which encodes a protein having choline monooxygenase activity.
4. A recombinant vector comprising the gene according to claim 2 or 3.
5. A transformant comprising the recombinant vector according to claim 4.
6. A method for producing a choline monooxygenase, comprising culturing the transformant according to claim 5 and recovering the choline monooxygenase from the resultant culture.
7. The following peptide (e) or (f):

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(e) a peptide comprising the amino acid sequence shown in SEQ ID NO: 17;  
(f) a peptide which comprises the amino acid sequence shown in SEQ ID NO: 17 having deletion, substitution or addition of one or several amino acids and which has signal peptide activity; or a salt thereof.

8. A gene encoding the following peptide (e) or (f):

(e) a peptide comprising the amino acid sequence shown in SEQ ID NO: 17;  
(f) a peptide which comprises the amino acid sequence shown in SEQ ID NO: 17 having deletion, substitution or addition of one or several amino acids and which has signal peptide activity.

9. A gene comprising the following DNA (g) or (h):

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(g) a DNA comprising the nucleotide sequence shown in SEQ ID NO: 16;  
(h) a DNA which hybridizes to a DNA comprising the nucleotide sequence shown in SEQ ID NO: 16 under stringent conditions and which encodes a protein having signal peptide activity.

10. A recombinant vector comprising the gene according to claim 8 or 9 and a gene of interest.

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11. The recombinant vector according to claim 10, wherein the gene of interest leads to production of a polypeptide or production of a plant metabolite.

12. The recombinant vector according to claim 10, wherein the polypeptide or the plant metabolite confers stress resistance. *LAB*

13. The recombinant vector according to claim 10, wherein the gene of interest is *Chenopodium album choline monooxygenase gene.*

14. A transformant comprising the recombinant vector according to any one of claims 10 to 13.

15. The transformant according to claim 14, which is a plant body, plant organ, plant tissue or cultured plant cell.

16. An environmental stress-resistant plant which is obtained by culturing or cultivating a transformed plant comprising the recombinant vector according to claim 12 or 13 under environmental stress conditions.

17. The plant according to claim 16, wherein the environmental stress is salt stress.

18. A method for creating an environmental stress-resistant plant, comprising culturing or cultivating a transformed plant comprising the recombinant vector according to claim 12 or 13 under environmental stress conditions.

19. A method for inducing accumulation of a polypeptide or a plant metabolite, comprising culturing or cultivating the transformant according to claim 14 or 15 under environmental stress conditions.

20. The method according to claim 19, wherein the plant metabolite is a substance which confers environmental stress resistance.

21. The method according to claim 20, wherein the substance which confers environmental stress resistance is betaine.

22. A method for producing betaine, comprising culturing or cultivating a transformant comprising the recombinant vector according to claim 13 and recovering betaine from the

resultant culture or cultivated product.